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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,290	08/23/2006	Takeo Tokiai	294806US0PCT	6806
22850 7590 07/02/2009 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER STANLEY, JANE L	
			ART UNIT	PAPER NUMBER
			1796	
			NOTIFICATION DATE	DELIVERY MODE
			07/02/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/590,290	Applicant(s) TOKIAI, TAKEO	
	Examiner JANE L. STANLEY	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20081224</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's reply filed 18 March 2009 has been fully considered. **Claims 1-9** are pending: **claims 4 and 7-8** are as previously presented, and **claims 2-3 and 5-6** are as originally filed.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on **24 December 2008** was filed after the mailing date of the first action on the merits on **18 September 2008**. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egawa et al. (US 6,261,474) in view of Kaneko et al. (US 5,801,132).

Regarding claim 1-7, Egawa et al. teaches a lubricating oil comprising a refrigerant and a polyvinyl ether compound having units (a) represented by (I) $-(CH_2-C(OR)H)-$ and units (b) represented by (I') $-(CH_2C(OR')H)-$ wherein R represents a hydrocarbon group with 1 to 3 carbon atoms, R' represents a hydrocarbon group with 3

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to 20 carbon atoms (abstract) and wherein the mol ratio of (a) to (b) is in the range of 10:0 to 5:5 (col 5 ln 51-55). Egawa et al. teaches that R in formula (I) can include methyl (col 5 ln 11-14, ln 44-45). Furthermore, Egawa et al. teaches the polyvinyl ether having one end structure represented by (II) $\text{H-CH}_2\text{CH(OR}^1\text{)-}$ and the other end structure represented by (III) $\text{-CH}_2\text{CH(OR}^2\text{)H}$, wherein R^1 and R^2 represent hydrocarbon groups with 1 to 20 carbons (col 6 ln 38-65).

Egawa et al. teaches the refrigerant to be pentafluoroethane (abstract) and does not specifically teach a C1-C8 hydrocarbon compound. However, Kaneko et al. teaches compositions comprising similar polyvinyl ether polymers (col 2 ln 46; col 4 ln 4-38; col 5 ln 46-52; col 7 ln 12-19 and 27-33) and refrigerants (col 15 ln 53 to col 16 ln 13).

Kaneko et al. teaches hydrofluorocarbons including pentafluoroethane (col 15 ln 62) and hydrocarbons such as propane, cyclopropane, butane, isobutane and pentane (col 16 ln 5-6) to be refrigerant equivalents. Kaneko et al. and Egawa et al. are analogous art because they are both concerned with the same field of endeavor, namely refrigerant oil compositions comprising a base oil and a refrigerant. In view of the recognition by Kaneko et al. that hydrofluorocarbon refrigerants and the aforementioned hydrocarbon refrigerants are equivalent and interchangeable, it would have been obvious to one of ordinary skill in the art to substitute the hydrofluorocarbon with a hydrocarbon refrigerant and thereby arrive at the present invention. Case law holds that the mere substitution of an equivalent (something equal in value or meaning, as taught by analogous prior art) is not an act of invention; where equivalency is known to the

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prior art, the substitution of one equivalent for another is not patentable (See *In re Ruff* 118 USPQ 343 (CCPA 1958; MPEP 2144.06).

Egawa et al. does not specifically teach that the mixture viscosity of the refrigerating oil composition is 0.1 mm²/s or more, or 0.5 mm²/s or more when measured at 90 °C and 2.3 MPa. However, Egawa et al. teaches that the polyvinyl ether compound has a kinematic viscosity of 5 to 200 cSt at 40 °C (col 7 ln 13-23; see Table 1-1 Examples for viscosity data at both 40 °C and 100 °C). Egawa et al. is silent as to the pressure at which the measurement(s) was/were obtained. However, as the polyvinyl ether base oil and refrigerant made obvious by Egawa et al. in view of Kaneko et al. are the polyvinyl ether and hydrocarbon claimed, it is implicit that the polyvinyl ether base oil and refrigerant would have this property, absent evidence to the contrary.

Egawa et al. does not specifically teach that the solubility of the refrigerant (instant component A) in the base oil (instant component B) is 40 mass% or less, 2 to 40 mass%, 2 to 30 mass% or 5 to 25 mass% when measured at 40 °C and 1.2 mPa. However, as the polyvinyl ether base oil and refrigerant made obvious by Egawa et al. in view of Kaneko et al. are the polyvinyl ether and hydrocarbon claimed, it is implicit that the polyvinyl ether base oil and refrigerant would have this property, absent evidence to the contrary.

Regarding claim 8, Egawa et al. in view of Kaneko et al. makes obvious the composition set forth above. Egawa et al. further teaches the average molecular weight of the polyvinyl ether compound is from 150 to 2,000 (col 7 ln 18-19).

Regarding claim 9, Egawa et al. in view of Kaneko et al. makes obvious the composition set forth above.

Egawa et al. does not specifically teach the polyvinyl ether compound (instant component B) to have an oxygen atom content of 10 mass% or more. However, Egawa et al. teaches a 150 to 2,000 MW polyvinyl ether with units (a) and (b), formulas (I) and (II), in a ratio of 10:0 to 5:5 with end-units of formulas (II) and (III), and wherein R is a hydrocarbon with 1 to 3 carbons, R' is a hydrocarbon with 3 to 20 carbons, and R¹ and R² are hydrocarbons with 1 to 20 carbons. There exists a plurality of situations in which the polyvinyl ether of Egawa et al. will intrinsically have an oxygen atom content of 10 mass% or more.

Response to Arguments

The objection to **claims 1-9** for minor informalities is withdrawn as a result of Applicant's amendments.

The 35 U.S.C. 102(b) rejection of **claims 1-9** as anticipated by Nagao et al. (US 6,248,256) is withdrawn as a result of Applicant's amendments to **claim 1**. Applicant's arguments have been fully considered but are moot in view of the new grounds of rejection as set forth above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JANE L. STANLEY whose telephone number is (571)270-3870. The examiner can normally be reached on Monday-Thursday, 7:30 am - 5 pm, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/
Supervisory Patent Examiner, Art Unit 1796

/JLS/